

REMARKS

This is a full and timely response to the outstanding non-final Office Action mailed September 20, 2004. Upon entry of the amendments in this response, claims 1 - 32 remain pending. In particular, Applicant has amended claims 1, 8, 19 and 20 and has added claims 24 - 32. Reconsideration and allowance of the application and presently pending claims are respectfully requested.

Indication of Allowable Subject Matter

The Office Action indicates that claims 5, 10, 15 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims. As set forth above, Applicant has added new claims 24 – 32. Applicant respectfully asserts that these claims recite various combinations of features that are believed to be the bases for the stated allowability of claims 5, 10, 15 and 21 and, therefore, also are believed to be in condition for allowance.

Objections to the Specification

The Office Action indicates that the disclosure sands objected to because of various informalities. As set forth above, Applicant has amended the specification and respectfully asserts that the objection has been accommodated.

Rejection under 35 U.S.C. 112

The Office Action indicates that claims 1, 8 and 20 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite. As set forth above, Applicant has amended the claims and respectfully asserts that the rejection has been accommodated.

Rejection under 35 U.S.C. 103

The Office Action indicates that claims 1 – 4, 6 – 9, 11 – 14, 16 – 19 and 22 - 23 stand rejected under 35 U.S.C. 103 as being unpatentable over *Fujiki* or *Kida*. Applicant respectfully traverses the rejection. In particular, Applicant respectfully submits that neither *Fujiki* nor *Kida* discloses or reasonably suggests, *inter alia*, the following features: “a bond pad comprises at least one slot,” “a bond pad comprises a plurality of parallel slots located in the bond pad,” “a plurality of bond pads located in each of the quadrants of the integrated circuit chip, wherein each of the bond pads comprises at least one slot” or “at least one bond pad disposed on the conductive layer, wherein the bond pad comprises at least one slot,” respectively recited in claims 1, 8, 13, and 19.

In this regard, the Office Action indicates that *Fujiki* discloses a bonding pad structure comprised of a first wiring layer (3), a second wiring layer (6), at least one interlayer insulation layer (2&4) and at least one conductive via hole (5). The Office Action also indicates that *Kida* discloses an electrode structure comprised of a wiring (14), a pad (3), an insulating film (15), and a plurality of conductive via holes (21). However, the pad (3) and the second wiring layer (6) for wiring bonding taught by the above-mentioned references are formed with planar conductive layers and without slots formed therein. Specifically, via holes (5) and (21) are formed in an interlayer insulation layer (2&4) or underlying insulating film (15) rather than in the pad (3) or

the second wiring layer (6). Therefore, Applicant respectfully asserts that the cited references do not teach or reasonably suggest all the features/limitation recited in the presently pending claims.

Turning now to the claims, claim 1 recites:

1. *A bond pad for a flip chip package, suitable for an integrated circuit chip, comprising:
at least one slot extending along a first direction, which is perpendicular to a second direction radiating from the center of the integrated circuit chip.*

(Emphasis Added).

Applicant respectfully asserts that *Fujiki* and *Kida*, either individually or in combination, are legally deficient for the purpose of rendering claim 1 obvious. Specifically, Applicant respectfully asserts that neither *Fujiki* nor *Kida* teaches or reasonably suggests at least the features/limitation emphasized above in claim 1. Therefore, Applicant respectfully asserts that claim 1 is in condition for allowance. Since claims 2 - 7 are dependent claims that depend from claim 1 either directly or indirectly, Applicant respectfully asserts that these claims also are in condition for allowance.

With respect to claim 8, that claim recites:

8. *A bond pad for a flip chip package, suitable for an integrated circuit chip, comprising:
a plurality of parallel slots located in the bond pad, each of the slots extending along a first direction, which is perpendicular to a second direction radiating from the center of the integrated circuit chip, wherein the bond pad is disposed at the corner of the integrated circuit chip.*

(Emphasis Added).

Applicant respectfully asserts that *Fujiki* and *Kida*, either individually or in combination, are legally deficient for the purpose of rendering claim 8 obvious. Specifically, Applicant respectfully asserts that neither *Fujiki* nor *Kida* teaches or reasonably suggests at least the features/limitation emphasized above in claim 8. Therefore, Applicant respectfully asserts that

claim 8 is in condition for allowance. Since claims 9 - 12 are dependent claims that depend from claim 8 either directly or indirectly, Applicant respectfully asserts that these claims also are in condition for allowance.

With respect to claim 13, that claim recites:

13. A bond pad structure for a flip chip package, suitable for an integrated circuit chip, the integrated circuit chip having a rectangular shape, comprising:
a plurality of bond pads located in each of the quadrants of the integrated circuit chip, wherein *each of the bond pads comprises at least one slot and each of the slots in the same quadrant extending along a direction which is substantially perpendicular to the diagonal lines of the integrated circuit chip passing through the quadrant in which it is located.*

(Emphasis Added).

Applicant respectfully asserts that *Fujiki* and *Kida*, either individually or in combination, are legally deficient for the purpose of rendering claim 13 obvious. Specifically, Applicant respectfully asserts that neither *Fujiki* nor *Kida* teaches or reasonably suggests at least the features/limitation emphasized above in claim 13. Therefore, Applicant respectfully asserts that claim 13 is in condition for allowance. Since claims 14 - 18 are dependent claims that depend from claim 13 either directly or indirectly, Applicant respectfully asserts that these claims also are in condition for allowance.

With respect to claim 19, that claim recites:

19. A semiconductor device, comprising:
a substrate;
a conductive layer, disposed on the substrate; and
at least one bond pad, disposed on the conductive layer, *wherein the bond pad comprises at least one slot extending along a first direction, which is perpendicular to a second direction radiating from the center of the surface of the substrate.*

(Emphasis Added).

Applicant respectfully asserts that *Fujiki* and *Kida*, either individually or in combination, are legally deficient for the purpose of rendering claim 19 obvious. Specifically, Applicant respectfully asserts that neither *Fujiki* nor *Kida* teaches or reasonably suggests at least the features/limitation emphasized above in claim 19. Therefore, Applicant respectfully asserts that claim 19 is in condition for allowance. Since claims 20 - 23 are dependent claims that depend from claim 19 either directly or indirectly, Applicant respectfully asserts that these claims also are in condition for allowance.

With respect to the contention that “the examiner takes the position that the slots in any direction would perform the same job” (page 3 of the Office Action), Applicant has construed this allegation as a statement of Official Notice. In this regard, Applicant respectfully disagrees with the contention and traverses. Therefore, Applicant respectfully requests that a readily available reference be provided as evidence of the contention. Additionally, Applicant respectfully asserts that the disclosure has adequately informed one of ordinary skill in the art to make and use the invention, and that one of such skill would understand the underlying principles of alleviating thermal stress. Thus, Applicant respectfully asserts that a specific statement of advantages is not required as indicated in the Office Action.

Newly Added Claims

Upon entry of the amendments in this response, Applicant has added new claims 24 – 32. Applicant respectfully asserts that these claims are in condition for allowance. Specifically, Applicant respectfully asserts that the art of record, either individually or in combination, is legally deficient for the purpose of anticipating or rendering obvious these claims. With respect

to new claim 24, Applicant respectfully asserts that the art of record does not teach or reasonably suggest at least the features/limitation emphasized below in claim 24.

24. *A bond pad for a flip chip package, suitable for an integrated circuit chip, comprising:*
a slot extending along a first direction, which is perpendicular to a second direction radiating from the center of the integrated circuit chip, wherein the slot is rectangular.

(*Emphasis Added*).

Therefore, Applicant respectfully asserts that claim 24 is in condition for allowance.

Since claims 25 - 29 are dependent claims that depend from claim 24 either directly or indirectly, Applicant respectfully asserts that these claims also are in condition for allowance.

With respect to claim 30, that claim recites:

30. A semiconductor device, comprising:
a substrate;
a conductive layer disposed on the substrate; and
bond pads disposed on the conductive layer;
wherein:
at least one of the bond pads comprises at least one slot extending along a direction perpendicular to a radial direction from the center of the surface of the substrate;
each quadrant of the integrated circuit chip comprises at least two of the bond pads; and
slots in the same quadrant extend in a direction that is substantially perpendicular to the diagonal line of the integrated circuit chip passing through the quadrant in which each of the slots is located.

(*Emphasis Added*).

Applicant respectfully asserts that the art of record does not teach or reasonably suggest at least the features/limitation emphasized above in claim 30. Therefore, Applicant respectfully asserts that claim 30 is in condition for allowance. Since claims 31 and 32 are dependent claims

that depend from claim 30 either directly or indirectly, Applicant respectfully asserts that these claims also are in condition for allowance.

Cited Art Made of Record

The cited art made of record has been considered, but is not believed to affect the patentability of the presently pending claims.

CONCLUSION

In light of the foregoing amendments and for at least the reasons set forth above, Applicant respectfully submits that all objections and/or rejections have been traversed, rendered moot, and/or accommodated, and that the pending claims are in condition for allowance. Favorable reconsideration and allowance of the present application and all pending claims are hereby courteously requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (770) 933-9500.

No fee is believed to be due in connection with this amendment and response to Office Action. If, however, any fee is believed to be due, you are hereby authorized to charge any such fee to deposit account No. 20-0778.

Respectfully submitted,

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